



2014 **FLORIDA** AUTOMATED VEHICLES

Creating the Framework for Implementation



Florida's Automated Vehicle Initiative



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Outline

- Overview of Autonomous Vehicles and Connected Vehicles
- Florida's Automated Vehicles Initiative Activities

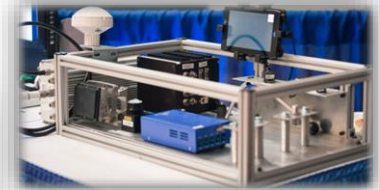




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Active FDOT Initiatives

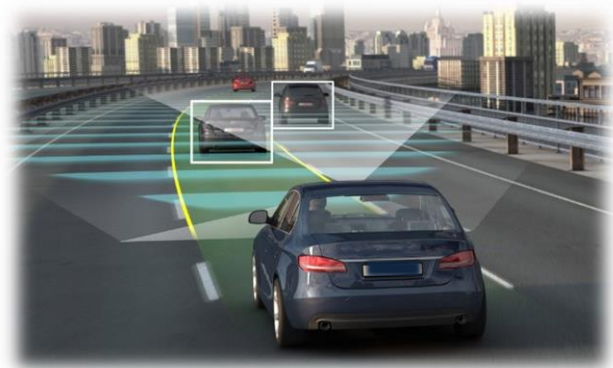
- **ITS Office Connected-Vehicle Test Bed**
25 Miles of roadway in Orlando, FL along portions of I-4, International Drive, and John Young Parkway
- **Florida Automated Vehicles Summits**
2013 - Tampa
2014 - Orlando
- **Stakeholder Working Groups**
- **Pilot Projects**
- **University Research Partnerships**
- **Public Outreach**





Pilot Projects Overview

- **FL Legislation (House Bill 1207) allows for the testing of autonomous vehicles on public roadways**
 - *Legislation is not needed to allow for the FDOT sponsored pilot projects that are currently underway
- **Data is needed to provide justification for necessary changes in policy and/or engineering & design standards**
- **Initial test beds**
 - Managed lanes (commuter vehicles)
 - 'Last mile' solutions near ports/downtowns (freight/transit)
 - Closed course (level 4 automation)





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Pilot Project Goals

- **Leverage Existing Infrastructure to Maximize Benefits**
- **Develop Rich Dataset that Demonstrates Quantitative Safety and Efficiency Benefits**
- **Performance Measures**
Comparative analysis before/after AV technologies are deployed



“If you can not measure it, you can not improve it.” (Lord Kelvin)



Automating Florida's Freight

Assessing Automated Vehicle Technology for Miami's Perishable Freight Industry

- **Initially engaging the floral freight industry**
 - #1 perishable import through Miami International Airport
 - Multi-billion dollar industry
 - 2/3 of all flowers consumed in U.S. imported through MIA
 - Any increase in efficiency results in increased commerce through Florida
- **Preliminary efforts are underway**
 - Coordinated with public partners
 - Engaging private stakeholders
 - Identify & measure repetitive delivery routes
 - Understand existing transportation system operations





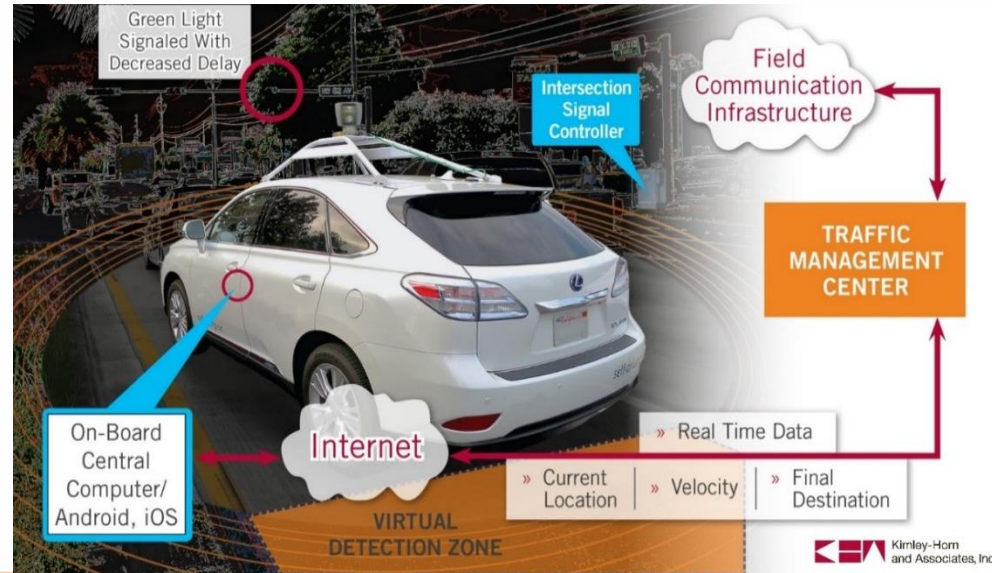
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Automating Florida's Freight

Assessing Automated Vehicle Technology for Miami's Perishable Freight Industry

3 Phases (12-18 months per phase)

1. Measure existing operations (set benchmark)
2. Deploy CV technology & prioritize
3. Install AV technology & automate





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Advanced Driver Assistance Systems Pilot Project

Advanced Driver Assistance Systems

- **Driver alert warnings**
forward collision, lane departure, bike/ped detection, speed limit detection, etc.
- **Classifies as Level 0 automation by NHTSA**
Technology/sensors serve as building blocks for higher levels of autonomy
- **Readily available as features offered by automobile manufacturers and as aftermarket devices**





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Advanced Driver Assistance Systems Pilot Project

Participating Agencies

FDOT District 7 (Tampa Bay area)
Hillsborough Area Regional Transit
Tampa Bay Area Regional Transit Agency
Pinellas County Transit Agency
Pasco County Public Transportation

100 vehicles with GeoTab (telematics device)
Serves for comparison of study vehicles

50 vehicles with MobilEye devices

Study Duration is 1 year - Installs completed
August Data collection underway



Fleetistics
Measure. Lead. Succeed.

MOBILEYE

GEOTAB
management by measurement



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MobilEye

- Daylight Pedestrian Collision Warning, including Bicycle Detection
- Forward Collision Warning, both in Highway and Urban areas, including Motorcycle Detection
- Lane Departure Warning
- Headway Monitoring and Warning





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Geotab

- Provides vehicle diagnostics information
- Real time data on vehicle exceptions and performance
- Data transmitted via cellular signals
- Dashboard to visualize data

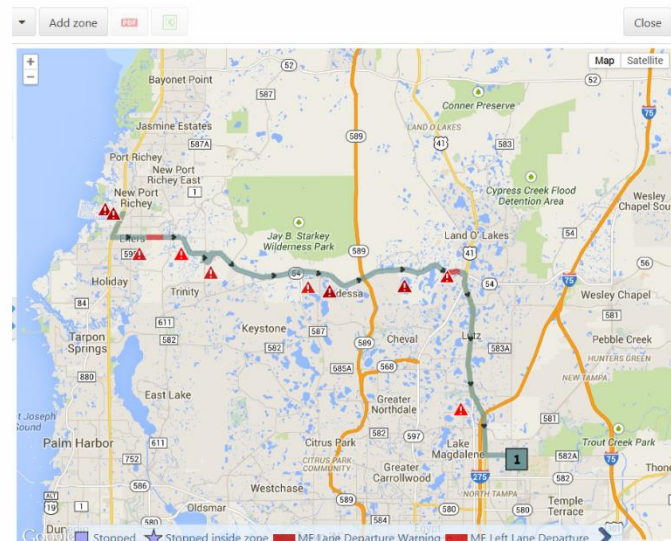
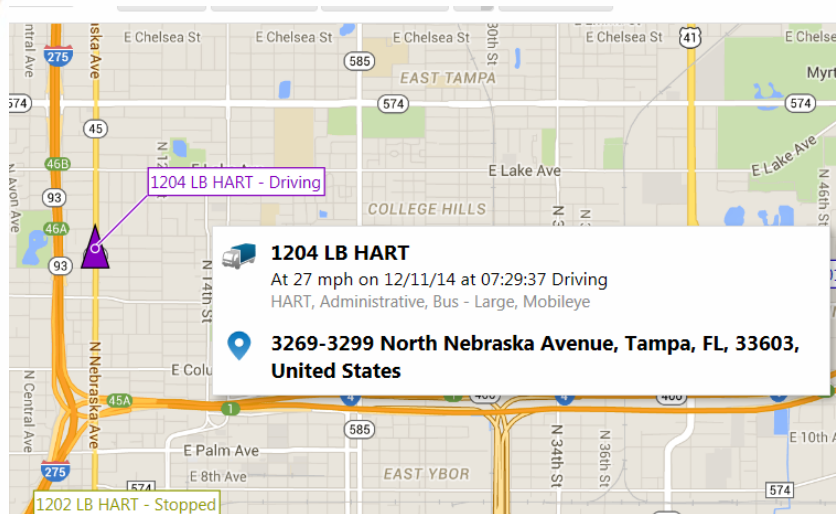


GEOTAB
management by measurement



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Real Time and Historic Information





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MobilEye Events

Type of Warning	MobilEye Events (September 2014)		MobilEye Events (October 2014)	
	Number	Percent	Number	Percent
ME Forward Collision Warning	1,107	0.9%	1,034	1.0%
ME Headway Warning (Tailgating)	69,967	59.5%	65,401	65.4%
ME Left Lane Departure	14,124	12.0%	10,653	10.6%
ME Pedestrian Collision Warning	645	0.5%	433	0.4%
ME Right Lane Departure	29,617	25.2%	21,816	21.8%
ME Urban Forward Collision Warning	2,204	1.9%	724	0.7%
Total	117,664	100.0%	100,061	100.0%



Preliminary Conclusions and Next Steps

- **Preliminary Observations**
 - MobilEye making drivers aware about safety
 - Need to determine if trend persists with data from November and December
 - Critical to understand context of bus operations
 - False alarms can be triggered by bicycle on bus
- **Next Steps**
 - Overlay with trip and land use information
 - Determine how density impacts driver behavior
 - Obtain and overlay weather data
 - Determine impacts of weather on driver behavior



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Questions?

**FDOT Transportation Statistics Office
oversees the automated vehicle
initiatives.**

www.automatedFL.com

Email questions/comments to:
automatedFL@dot.state.fl.us